

Application No. 09/271,584

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In the Claims

*sub*  
1. (Twice amended) An isolated nucleic acid molecule encoding a PNHX transporter polypeptide or a fragment of a plant polypeptide having Na<sup>+</sup>/H<sup>+</sup> transporter activity that provides increased salt tolerance in a cell, wherein said nucleic acid molecule is not the sequence of the gene A\_TM021B04.4 or complementary to all of the sequence of the gene A\_TM021B04.4.

*C1*  
2. (Twice amended) An isolated nucleic acid molecule encoding a PNHX transporter polypeptide or a fragment of a plant polypeptide having Na<sup>+</sup>/H<sup>+</sup> transporter activity that provides increased salt tolerance in a cell, wherein said nucleic acid molecule is not the sequence of the gene A\_TM021B04.4 or complementary to all of the sequence of the gene A\_TM021B04.4, comprising a nucleic acid molecule selected from the group consisting of:

(a) a nucleic acid molecule that hybridizes to all or part of a nucleic acid molecule shown in [SEQ ID NO:1], or a complement thereof under moderate or high stringency hybridization conditions, wherein the nucleic acid molecule encodes a PNHX transporter polypeptide or a plant polypeptide having Na<sup>+</sup>/H<sup>+</sup> transporter activity and capable of increasing salt tolerance in a cell;

(b) a nucleic acid molecule degenerate with respect to (a), wherein the nucleic acid molecule encodes a PNHX transporter polypeptide or a plant polypeptide having Na<sup>+</sup>/H<sup>+</sup> transporter activity and capable of increasing salt tolerance in a cell.

*C2*  
4. (Twice amended) An isolated nucleic acid molecule encoding a PNHX transporter polypeptide or a fragment of a plant polypeptide having Na<sup>+</sup>/H<sup>+</sup> transporter activity and that provides increased salt tolerance in a cell, wherein said nucleic acid molecule is not the sequence of the gene A\_TM021B04.4 or complementary to all of the sequence of the gene A\_TM021B04.4, comprising a nucleic acid molecule selected from the group consisting of:

(a) the nucleic acid molecule of the coding strand shown in [SEQ ID NO:1], or a complement thereof;

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- C2
- (b) a nucleic acid molecule encoding the same amino acid sequence as a nucleotide sequence of (a); and
- (c) a nucleic acid molecule having at least 30% identity with the nucleotide sequence of (a) and which encodes a PNHX transporter polypeptide or a plant polypeptide having  $\text{Na}^+/\text{H}^+$  transporter activity.
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C3 sub Dr

5. (Amended) The nucleic acid molecule of any of claims 1 to 4, wherein the PNHX transporter polypeptide comprises an AtNHX transporter polypeptide having  $\text{Na}^+/\text{H}^+$  transporter activity that provides increased salt tolerance in a cell.

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C4 sub Dr

7. (Twice amended) An AtNHX nucleic acid molecule isolated from *Arabidopsis thaliana* or a fragment thereof encoding a transporter polypeptide having  $\text{Na}^+/\text{H}^+$  transporter activity that provides increased salt tolerance in a cell, wherein said nucleic acid molecule is not the sequence of the gene A\_TM021B04.4 or complementary to all of the sequence of the gene A\_TM021B04.4.

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C5 sub Dr

12. (Twice amended) The nucleic acid molecule of any of claims 1 to 4, wherein the PNHX transporter polypeptide extrudes monovalent cations out of the cytosol of a first cell transformed with the nucleic acid molecule of any of claims 1 to 4 to provide the first cell with increased salt tolerance relative to a second non-transformed cell, wherein the monovalent cations are selected from at least one of the group consisting of sodium, lithium and potassium.

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C6

13. (Amended) The nucleic acid molecule of claim 12, wherein the cells comprise plant cells.

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C7

27. (Amended) A method of producing a genetically transformed plant which expresses PNHX transporter polypeptide, comprising regenerating a genetically transformed plant from the plant cell, seed or plant part of claim 21.

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C8 sub Dr

28. (Twice amended) The method of claim 26, wherein the genome of the host cell also comprises a functional PNHX gene.

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29. (Twice amended) The method of claim 26, wherein the genome of the host cell does not comprise a functional PNHX gene.

31. (Twice amended) A method for expressing a PNHX transporter polypeptide in the host cell of claim 19, the method comprising culturing the host cell under conditions suitable for gene expression.

53. (Twice amended) A method of producing a genetically transformed plant which expresses or overexpresses a PNHX transporter polypeptide or a plant polypeptide having  $\text{Na}^+/\text{H}^+$  transporter activity and provides increased salt tolerance in a cell, wherein said nucleic acid molecule is not the sequence of the gene A\_TM021B04.4 or complementary to all of the sequence of the gene A\_TM021B04.4, and wherein the plant has increased salt tolerance, comprising:

(a) cloning or synthesizing a PNHX nucleic acid molecule or a nucleic acid molecule which codes for a plant  $\text{Na}^+/\text{H}^+$  transporter polypeptide, wherein the polypeptide is capable of providing salt tolerance to a plant and wherein said nucleic acid molecule is not the sequence of the gene A\_TM021B04.4 or complementary to all of the sequence of the gene A\_TM021B04.4;

(b) inserting the nucleic acid molecule in a vector so that the nucleic acid molecule is operably linked to a promoter;

(c) inserting the vector into a plant cell or plant seed;

(d) regenerating the plant from the plant cell or plant seed, wherein salt tolerance in the plant is increased compared to a wild type plant.

Please add the following new claim.

56. (New) An isolated nucleic acid molecule encoding a TNHX transporter polypeptide or a PNHX transporter polypeptide, or a fragment of a polypeptide having  $\text{Na}^+/\text{H}^+$  transporter activity that provides increased salt tolerance in a cell, comprising [SEQ ID NO. 1].-